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IS 11990 (1986): Gas Washing Bottles [CHD 10: Glassware]



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**IS : 11990 - 1986**

*Indian Standard*  
**SPECIFICATION FOR  
GAS WASHING BOTTLES**

UDC 542.231.2 : 542.745 : 666.172.7

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**BUREAU OF INDIAN STANDARDS**  
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NEW DELHI 110002

**AMENDMENT NO. 1 JULY 2007**  
**TO**  
**IS 11990 : 1986 SPECIFICATION FOR GAS**  
**WASHING BOTTLES**

(Page 4, clause 4.2) — Substitute the following for the existing clause:

**‘4.2 Material** — The gas washing bottles including the head and dip tubes, shall be made from transparent, clear glass conforming to Class HGB 1 of glass, when graded according to the method prescribed in IS 2303 (Part 1/Sec 1) : 1994\*.’

(Page 4, footnote marked \*) — Substitute the following for the existing:

‘\*Grading glass for alkalinity Part 1 Hydrolytic resistance, Section 1 Hydrolytic resistance of glass grains at 98°C Method of test and classification (first revision)’

(Page 7, clause 5.2.1) — Substitute the following for the existing clause.

**‘5.2.1 BIS Certification Mark**

The gas washing bottle may also be marked with the Standard Mark.

**5.2.1.1** The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.’

(CHD 10)

# *Indian Standard*

## SPECIFICATION FOR GAS WASHING BOTTLES

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(Continued on page 2)

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# *Indian Standard*

## SPECIFICATION FOR GAS WASHING BOTTLES

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 15 December 1986, after the draft finalized by the Laboratoryware and Related Apparatus Sectional Committee had been approved by the Chemical Division Council.

**0.2** This Indian Standard was prepared with the aim of reducing unnecessary variety in the types and sizes of gas washing bottles used in laboratories. In this standard the Drechsel bottle with fixed head has been prescribed. The dip tube of the bottle may be plain or sintered distributor.

**0.3** In the formulation of this standard, considerable assistance has been derived from BS : 2461-1983 'Specification for gas washing bottles', issued by the British Standards Institution.

**0.4** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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### 1. SCOPE

**1.1** This standard prescribes the requirements, and methods of sampling and test for gas washing bottles suitable for general use in laboratories.

### 2. TERMINOLOGY

**2.0** For the purpose of this standard, the following definition in addition to those given in IS : 1382-1981†, shall apply.

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\*Rules for rounding off numerical values (*revised*)

†Glossary of terms relating to glass and glassware (*first revision*)



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**2.1 Drechsel Bottle with Fixed Head** -- Drechsel bottle as shown in Fig. 1 with standard ground joint at the neck and with dip tube having fixed position.

### **3. NOMINAL CAPACITIES**

**3.1** The gas washing bottles shall be of nominal capacities of 125, 250 and 500 ml.

### **4. REQUIREMENTS**

**4.1 Shape** — The shape of gas washing bottles shall be as illustrated in Fig. 1.

**4.2 Material** — The gas washing bottles including the head and dip tubes, shall be made from transparent, clear glass conforming to Type 1, when graded according to the method prescribed in IS : 2303-1963\*.

**4.3 Workmanship** — The gas washing bottles shall be regular in shape with smooth finish and well annealed. These shall be symmetrical about the axis. It shall be reasonably free from visible defects.

**4.3.1** The gas washing bottles shall be provided with a stable base such that a bottle, complete with head, shall not topple when placed on a surface inclined at 15° to the horizontal, and shall stand firmly and upright on a level surface.

**4.3.2 Base/Foot** — The base/foot of the gas washing bottle may be solid, hollow or splay as illustrated in Fig. 2A to Fig. 2C, or as agreed to between the purchaser and the supplier.

**4.3.3 Ground Glass Joints** — The ground glass joints of gas washing bottles shall be of sizes 29/32 or 40/38 and shall comply with the requirements of IS : 5156-1969†.

**4.3.4 Dip Tube** — The dip tube of gas washing bottle shall be either plain or fitted with sintered distributor as agreed to between the purchaser and the supplier. Sintered distributors, when fitted, shall be of porosity grade number from P 1'6 to P 250 and shall conform to the requirements specified in relevant Indian Standard Specification for laboratory sintered (fritted) filters porosity grading, classification and designation ( *under preparation* ).

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\*Methods of grading glass for alkalinity.

†Specification for interchangeable conical ground glass joints.

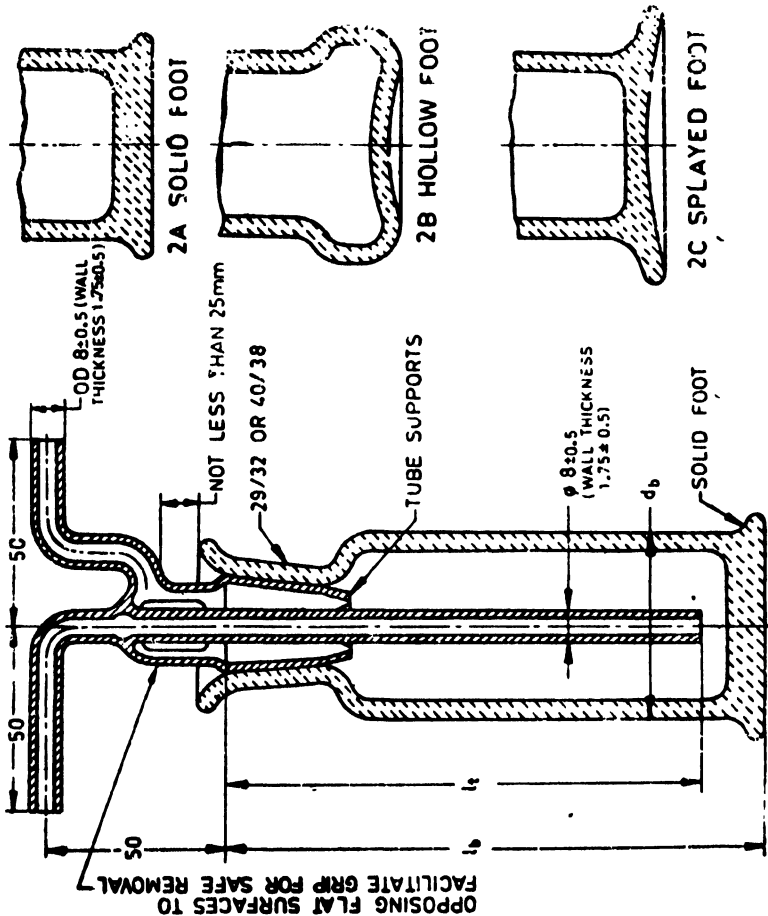


FIG. 1 DRECHSEL BOTTLE FITTED WITH SOLID FOOT AND PLAIN TUBE

FIG. 2 ALTERNATIVE FORMS OF FOOT

**4.3.5** The lower tip of the head shall be provided with not less than three supports (for example, indentations) to support the dip tube (see Fig. 1). The outer surface of the head shall be provided with opposing flat surfaces to facilitate grip for safe removal.

**4.3.6** The gas washing bottles shall be of robust construction to satisfy the requirements of normal use.

**4.4 Dimensions** — The gas washing bottles shall comply with the dimensions given in Table 1 and Fig. 1.

**4.4.1 Tolerance** — It shall be  $\pm 5$  percent on all dimensions when the tolerance is not specified in Table 1 and Fig. 1.

**TABLE 1 DIMENSIONS OF GAS WASHING BOTTLES**

All dimensions in millimetres.

Sl. No.	DIMENSIONS	NOMINAL CAPACITIES		
		125 ml	250 ml	500 ml
(1)	(2)	(3)	(4)	(5)
i)	Overall length of the body, $l_b$	148	188	240
ii)	Length from top of the cone to bottom of distributor tube, $l_t$	130	165	215
iii)	External diameter of body, $d_b$	48	56	70

## 5. PACKING AND MARKING

**5.1 Packing** — The gas washing bottles shall be packed as agreed to between the purchaser and the supplier

**5.2 Marking** — The gas washing bottles shall be marked permanently and legibly on its outer surface with the following:

- Name of the manufacturer or his recognized trade-mark, if any;
- Nominal capacity in ml;
- A rough surface or suitably painted one centimetre square for marking purpose;
- Standard joint size on the body and the head part; and
- Porosity grade number on the head, if porous distributor provided.

**5.2.1** The gas washing bottle may also be marked with the Standard Mark.

**NOTE**— The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard Marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

## 6. SAMPLING

**6.1** Representative samples of the gas washing bottle shall be drawn as prescribed in Appendix A.

# APPENDIX A

( Clause 6.1 )

## SAMPLING OF GAS WASHING BOTTLES

### A-1. SCALE OF SAMPLING

**A-1.1** All the gas washing bottles of same type and same capacity in one consignment shall constitute a lot.

**A-1.1.1** Samples shall be taken from each lot for ascertaining the conformity to this specification and shall be according to Table 2.

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**TABLE 2 NUMBER OF GAS BOTTLES TO BE SELECTED**

LOT SIZE	SAMPLE SIZE	ACCEPTANCE NUMBER
(1)	(2)	(3)
Up to 50	3	0
51 to 100	5	0
101 to 150	8	1
151 to 300	13	2
301 and above	20	3

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**A-1.2** The sample shall be selected from the lot at random and in order to ensure randomness of selection, the method given in IS : 4905-1968\* may be followed.

**A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY**

**A-2.1** Tests for all the requirements given in 4, except quality of glass (4.2) shall be conducted on each of the bottle selected according to col 2 of Table 2. If a gas bottle fails to meet any of these requirements, it shall be declared as defective and the number of defective bottles in the sample shall not be more than the corresponding acceptance numbers given in col 3 of Table 2.

**A-2.2** Test for a quality of glass shall be conducted on two gas bottles and the lot shall be declared as conforming to the requirements of quality of glass if there is no failure in the sample.

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\*Methods for random sampling.

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